FRIENDSHIP AND COMMUNICATION STRATEGY IN INTERPERSONAL NEGOTIATIONS

by

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ABSTRACT

The purpose of this investigation was to evaluate differential social relationships and verbal communication strategies as potential sources of systematic error in game theory. Specifically, the study focused upon friendship as an antecedent influence and communication as a process variable affecting the agreements reached in mixed-motive interpersonal negotiations.

The theory of negotiated games was examined and considered as a tool for the evaluation of contextual conflict interaction. The most primary assumptions of game theory were reviewed. It was suggested that although game theory is a useful model, actual human interaction is more complex that the theory implies. It was predicted that friendship would serve as a competitive influence in negotiations leading to solutions which would differ from those predicted by game theory. It was further predicted that friends would display a larger number of competitive verbal communication strategies that non-friends. Finally, it was predicted that competitive verbal strategies would be associated with less efficient solutions, and that cooperative strategies would be associated with the more efficient solutions.

To test these predictions, thirty dyads were recruited to participate in a bargaining session which was structured to be mixed-motive in nature. The subject's verbalizations and solutions were recorded and subjected to analysis.

The results indicated that friends selected the most efficient agreements, but they did not employ more competitive or

cooperative verbal strategies. Finally, no significant relationship was found between verbal communication strategies and solution efficiency.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND

The purpose of this investigation was to evaluate differential social relationships and verbal communication strategies as potential sources of systematic error in game theory. More particularly, the study focused upon "friendship" as an antecedent influence and communication as a process variable affecting the agreements reached in mixed-motive interpersonal negotiations.

The thrust of the study was twofold. First, it attempted to examine empirically some theoretical relationships between two isolated variables upon each other, and of the two variables upon the relative efficiency of the solutions reached in mixed-motive interaction. A second aim of the study was to generate ideas and targets for further research in areas which have received little empirical investigation.

Background

The theory of negotiated games is useful for the study of human conflict because it specifies normative characteristics and rules of decision behavior by which contextual conflict interactions may be evaluated. Gaming models are also useful because they have a degree of predictive power for the outcome of the conflict within the limitations imposed by their assumption of "rational" gaming behavior.

Often, however, game theory has been criticized because it fails to consider non-rational, but realistic elements of decision-making. Harsanyi (1960) makes precisely this point: "In the case

of bargaining, of course, it is obvious enough that the outcome is often affected by irrational behavior on the part of either party (or both parties)." (p.193) Moreover, Rapoport (1966) questions the extent to which game theory approximates actual human decision-making:

> Game theory, as it was formulated by mathematicians is not equipped to deal with these matters, because there is no room in that theory for the psychological make-up of the participants. To the extent that psychological matters are allowed to enter a theory of conflict, the theory ceases to be a model of rational conflict.... At least 'rationality' must be modified to a relative concept to be put into specific psychological contexts. (p.206)

One consequence of the self-imposed limitations of game theory is that a large proportion of empirical gaming research has focused upon discovering systematic error in the formal gaming model. This study identifies friendship and verbal communication strategy as two likely sources of systematic error.

The Gaming Model

Since this study predicted systematic deviation from the gaming model, it is necessary to review in summary form some of the assumptions made by game theory.

First, game theory assumes that individuals develop ordered preferences toward alternative behaviors based upon some utility function. Formally, if $X[n_1, n_2, n_3, \ldots n_z]$ represents a set of alternatives, and $U[n_a]$ represents the relative value or utility of selecting some alternative, then n_1 should be ordered (preferred) prior to n_2 if and only if $U[n_1] \geq U[n_2]$. In words, individuals should

conceptualize their alternatives for a given situation such that the alternatives are ordered from greatest to least utility. For example, if profit is a salesperson's primary motivation, and if the sale of product X results in greater profit than the sale of product Y, then X should be a preferred alternative over Y.

A second assumption of game theory is known as "utility maximization." This assumption is that individuals will behave so as to maximize their gains or utility in their relationships with others. (Beisecker, 1970) Hence, not only should people be capable of ordering their preferences from greatest to least utility, but they should also behave in a manner which maximizes their gains. In the previous example, the salesman should attempt to maximize his profit by selling product X if he can.

A third assumption made by game theory is that individuals will agree upon the most efficient solution when engaged in a mixed-motive situation. Both efficiency and mixed-motivation require definitions here. The efficiency concept is explained formally by Harasanyi (1961), and is simplified by Beisecker (1970) as follows:

> If two solutions, A and B are such that A provides at least equal rewards to all participants and greater rewards for some participants than B, then A is said to be a more efficient solution than B. (p.150n)

Efficiency, then, could be considered the maximization of joint gain between two interdependent parties. In the example of the salesman, the sales of product X is the most efficient solution only if the buyer realizes rewards equal to or greater than what he would realize from buying product Y. Hence, the most efficient solution

need not maximize the gain or utility of either party, but rather denotes the solution whereby the joint gain between parties is maximized.

Finally, it is useful to define the phrase "mixed-motive interaction." In the conflict arena, the term mixed-motive refers to a dual motivation on the part of the interdependent parties who are trying to achieve some goal. On the one hand, it is in the interest of the parties to compete with each other in order to maximize their own respective gains. Since the parties are interdependent and can therefore interfere to some extent with each other's pursuit of the goal, it is also in both parties' interest to cooperate with each other. A mixed-motive interaction can therefore be defined as activity where structure or circumstances generate both competitive and cooperative motives in the participants. In the example of the salesman and potential buyer, the mixed-motives of each can be cast quite clearly. It is, of course, in the interest of the salesperson to compete with the buyer, perhaps by consistently demanding a high price for product X. Likewise, it is in the buyer's interest to offer a small price for the product. In both cases, the objective is to realize maximum individual gains without regard for the gains of the other party. However, a motive of cooperation should also exist if the parties are interdependent to even a small extent. The salesman may lose the potential buyer altogether if the former is not willing to be flexible in his pricing. Likewise, the buyer may not obtain a desired product if he is not willing to raise his offer for that product. In either

case, the outcome for both may be less than had they reached a point of commercial agreement. Many interactions are structurally similar to the seller/buyer example and can therefore be cast as mixed-motive.

In summary, game theory assumes that individuals are capable of ordering their preferences with respect to utility functions, and behaving so as to maximize their gains. In mixed-motive situations, participants should arrive at the most efficient solution. Once values have been assigned to all alternatives for each participant, the most efficient solution can be specified. Methods for the mathematical derivation of solutions are explicated fully in a number of places (Harsanyi, 1961; Nash, 1950; Von Neuman and Morgenstern, 1953).

Social Applications of Game Theory

Although game theory offers a useful model for evaluating real life interpersonal negotiation, there are many possible influences which may lead to solutions or outcomes which are different than those predicted by the theory. In the seller/buyer example, no assumption was made concerning the social relationship between the two individuals. Indeed, the same solution would be predicted whether the individuals were totally unacquainted, sworn enemies or the best of friends, although common sense might lead to anticipate different solutions in each case. In other words, the commercial attractiveness of alternatives might remain constant, but the psychological and social factors may be important as well. For example, if the

seller and buyer are friends, then each might expect a good deal of deference on the part of the other. Such expectations could conceivably alter both bargaining behavior and the solution which is reached by adding a non-rational element to the negotiations. It will be useful to dwell on the concepts of friendship and acquaintance because structural differences in social involvement can be considered a realistic element in social interaction, and therefore negotiation.

In a structural sense, friendship may be distinguished from the class of general social relationships in that the former requires voluntary establishment and maintenance, whereas the latter may be optional or mandatory. Suttles (1970) explains that: "Friendship is perceived directly as a means of going beyond prescribed institutional or organizational affiliations." (p.97) One necessary characteristic of friendship is a high degree of voluntary interdependence.

A second defining characteristic of friendship is that such relations involve mutual positive evaluation as "person-qua-person," i.e., as sources of intrinsic satisfaction. (Wright, 1978) For purposes of this investigation, friendship shall be defined as a dyadic relationship characterized by a high degree of voluntary interdependence and person-qua-person appreciation for the relationship. The term "acquaintance" shall be used for reference to a relationship characterized by a moderate degree of VI (voluntary interdependence) and PQP (person-qua-person) appreciation. The term "non-acquaintances" shall be used to refer to those who have not previously interacted.

Although friendship may influence interpersonal negotiations in some ways, it is not altogether easy to predict systematically either the character of the negotiations or the results from the influence. One "common sense" notion is that friends should be more cooperative than non-friends in negotiation because of their positive affect towards each other. An equally plausible notion is that friends may actually be less cooperative than non-friends because of greater stability and ego-involvement in the former relation. Vinacke (1969) points out that: "In fact, the friendship relation can have two different implications in games, either signifying the freedom to play competitively (so long as the basic relation is not violated), or constraint against offending each other." (p.203) Hence, either of two social norms could be in operation during negotiations, leading to deviation from game theoretic solutions.

A second major weakness of game theory is that it does not address the role of explicit verbal communication in the negotiation process. Frost and Wilmont (1978) maintain that the single greatest limitation of game theory is its relative disregard for the importance of verbal communication. (p.72)

Game theory assumes that all participants possess complete and accurate information concerning each other's preferences, alternatives and bargaining positions. Obviously, in order to arrive at the most efficient solution, participants must be capable of identifying that solution. In order to identify the most efficient solution, the participants must know or be able to estimate each other's utility functions and preferences, since the former is a function

of the latter. Although it is possible that the information will be known to participants prior to the negotiations (perhaps from past negotiations), in practice, the exchange of information is made through some form of interpersonal communication. Hence, communication must be considered a structural prerequisite to negotiation. As Schelling (1960) notes:

> It means that tacit and explicit bargaining are not thoroughly separate concepts but that the various gradations from tacit bargaining up through types of incompleteness or faulty or limited communication to full communication all show some dependence on the need to coordinate expectations. (p.73)

The function of verbal communication need not be limited to the exchange of factual information, however. Although communication structure is necessary for negotiations to take place, the content of communications can be critical in the formation and alteration of perceptions. Indeed, verbal communications may influence the interpretation and evaluation of any aspect of the negotiations. In this respect, communication may properly be considered a tool of strategy, i.e., an instrument which can be used for the purpose of effecting certain outcomes. Unfortunately, communication content has been largely ignored in the empirical investigation of gaming behavior. Consequently, little is known about the selection or efficacy of verbal communication strategies in negotiation.

In summary, the game theoretic model of bargaining does not address differences in social relationship or verbal communication strategy selection, both of which may be sources of systematic error in that model. Friendship, as structurally defined in terms

of voluntary interdependence and intrinsic relational satisfaction, may conceivably influence the negotiation process and subsequent solution. In particular, friendship may either enhance cooperation or intensify competition in negotiations. Communication is both a structural prerequisite and a tool of strategy in bargaining and can therefore influence the solution to negotiations. Both friendship and communication strategy need further investigation to assess more adequately their importance in interpersonal negotiation. In an attempt to further empirical investigation of these variables, the present study was guided by three research questions:

1. Does friendship influence the selection of verbal communication strategies in mixed-motive interactions?
2. Does friendship influence the solutions reached in mixed-motive interactions?
3. Does communication strategy influence the solutions reached in mixed-motive interactions?

Chapter Two surveys the literature pertaining to these questions for purposes of building theoretical answers and predictions.

CHAPTER TWO

RELATED LITERATURE

The literature pertaining to friendship and communication strategy can be treated with respect to both theoretical and empirical research in each area.

Friendship

The theoretical literature relating to friendship in negotiation is largely prescriptive rather than descriptive, and it has a limited usefulness in terms of prediction. Nevertheless, a number of sources can be extracted which offer a fairly consistent view of the behavior of friends in conflict interaction. This view can be expressed in the proposition that friends tend to take a very competitive approach to conflicts, i.e., an orientation which focuses upon maximizing one's own gains without regard for the other's gains.

A number of sources suggest that the high level of voluntary interdependence associated with friendship generates a high level of ego-involvement, which in turn may intensify conflicts. Put in somewhat different terms, the voluntary interdependence and positive affect displayed between friends may be viewed as an investment with the expectation of some return. Where there is a tremendous investment, the participants may perceive a fairly limited range of acceptable "returns." The theories of Coser (1956), Suttles (1970), and Wright (1978) all support the view that a great deal of voluntary interdependence is associated with a large degree of ego-involvement, which should intensify conflicts of interest.

If friends do tend to become more ego-involved than non-friends in similar conflict situations, then there is theoretical support for the proposition that friends should behave more competitively than non-friends. The Social Judgement-Involvement theory (Sherif, Sherif, and Nebergall, 1965) maintains that as individuals become more ego-involved with respect to an issue, the range of positions on that issue which are perceived to be "acceptable" is constricted. In other words, an individual who is highly ego-involved with respect to some issue should have a more defined and inflexible position on the issue than a less ego-involved person.

In the arena of interpersonal negotiations, the Social Judgement-Involvement theory seems to support the view that friends behave more competitively than do less voluntarily interdependent individuals. Friends who perceive conflicting interests in a situation may be expected to be more ego-involved in the conflict. If they are more ego-involved, then their respective ranges of acceptable agreements should be smaller than those for less ego-involved individuals. Consequently, one could infer that greater perceived conflict would generate competitive approaches to the conflict. In any case, some friends may employ competitive tactics in conflict situations because they are more ego-involved than in a less interdependent relation.

A second reason why friends may be more competitive in conflict than non-friends is related to the stability of the relationship. In short, the satisfaction intrinsic in the relationship and whatever extrinsic rewards are consistently obtained may lend a stability to the relationship which actually sanctions competitive sorts of behavior. Borgatta (1954) explains:

> Prior experience indicates that in interaction, unfriendly acts, if the interaction is to be maintained, are carried out only in the tolerating social situation; that is, if the social situation is to maintain itself, hostility can occur only in circumstances where more permanent, underlying ties have already formed or exist..." (p.74)

It seems plausible that friends may engage in competitive behavior because the degree of toleration for such behavior is greater than in less stable forms of social relationship. Moreover, Wright draws a distinction between friendship and friendly relations (based upon the two structural components VI and PQP appreciation) and observes:

> Friendly relations are characterized by the interactants seeking out and pursuing 'integrating topics' to sustain, if not expand, their interaction. Therefore, we should expect communication in friendly relations to stress agreement and reciprocity.... Apparently, in the more comfortable and less formal context of deeper friendship, the partners do not feel they owe it to one another, out of politeness or decency, to exchange trust for trust. (p.203)

Wright's obersvation is not only consistent with previously cited literature, but it also lends explanation to Vinacke's conclusion that friendship may either enhance cooperation or intensify competition. The difference in observed behavior may be a function of measurable differences in the degree of friendship. In any case, the literature tends to support a tentative proposition that: Higher levels of voluntary interdependence and person-qua-person appreciation should correlate with a more competitive orientation to interpersonal conflict situations.

The empirical literature pertaining to friendship in gaming behavior neither confirms nor denies the preceding proposition. Rather, the results of gaming studies conflict with regard to

whether friends behave more or less competitively in simulated conflict situations.

Empirical study of friendship in gaming has been limited for the most part to matrix games where explicit verbal communication is not permitted. In one such study conducted by Oskamp and Perlman (1966), a group of college students who considered themselves friends behaved more cooperatively than did students who did not consider themselves friends. Curiously, the authors obtained opposite results when they administered the experiment at a different college. Greater competition was displayed by "best friends" than by any other group, including individuals who disliked each other. A different study (Swingle and Gillis, 1968) found that overall friends selected more cooperative choices than other groups, and that the subjects' behavior tended to match that of the opponent, whether the opponent behaved competitively or cooperatively. Finally, in a study of triadic gaming behavior (Iwakami, 1960), there were essentially no differences between friends and nonfriends with respect to competition and cooperation.

The sampling of studies outlined above indicates that no clear and consistent conclusions can be drawn concerning friendship in bargaining or negotiation from such matrix-type games. Of course, a number of factors could account for discrepancies in the findings of those studies. Two items in particular seem to deserve attention in the context of the present study.

First, there has been a general lack of standardization and validation of an instrument to measure friendship. For the most part, the definition of friendship in empirical gaming studies has

been left to subjects themselves to make within broad guidelines. Oskamp and Perlman, for example, simply asked subjects to list the names of persons that they considered best friends, acquaintances, etc. Although such an approach may be practical, there is little assurance that subjects actually maintained a uniform interpretation of friendship. A standardized instrument for the measurement of friendship would seem to contribute both to an understanding of what is being measured, and to the interpretability of the results in empirical studies.

A second problem with empirical studies of friendship in gaming is that the format of such studies has generally not permitted verbal communications between the participants. As noted previously, verbal communication is a realistic element of negotiation. Although a matrix-type format may approximate human decision behavior, a better approximation should include the opportunity for explicit verbal interaction between the participants.

Communication Strategy

The theoretical literature pertaining to communication strategy is devoted largely to communication structure rather than communication content. A number of authors acknowledge the importance of communication content without providing much detail. Wrightsman (1972), for example, points out that the content of communication can have a bearing on the outcome of games of strategy. Rapoport (1974) and others stress the importance of free communication to the coordination of expectations and, hence, to cooperation. Vinacke (1969) notes, however, that communication can as easily be used to defeat or take advantage of an opponent as to cooperate with him,

"In line with a point made previously, communication can be used for various purposes, not only to sound out a player, but also to deceive him (them)." (p.303)

Perhaps the most developed theoretical work concerning communication content as a tool of strategy is that of Beisecker (1970). In particular, Beisecker distinguishes between competitive and cooperative strategic aims for communication, and identifies four areas of focus for communication strategies. Competitive communication functions as "...a vehicle through which one individual attempts to distort the other's perceptions of the situation in order to obtain an advantage." (p.154) Cooperative communication, however, attempts to accurately assess and convey each other's intentions, preferences and relative interdependence. Whichever goal is sought, the communications between participants may focus on (1) issues, (2), the interpersonal relationship, (3) negotiation procedures, or (4) the actual making of offers. (p.154)

According to Beisecker, issue-oriented communications focus upon the preferences and alternatives open to participants in negotiation, including the evaluation of alternatives. Relationship-oriented communications focus upon the relative interdependence of the parties, including the social needs and desires of each. Procedure-oriented communications focus upon the mechanics of the negotiation process, i.e., the application of negotiation processes to some problem. Finally, offer-related communication focuses upon the solution or outcome of the negotiations, and includes the making, accepting and rejecting of offers.

As a whole, Beisecker's work offers both a method for classifying communication content, as well as a framework for conceptualizing the goal orientation of negotiators based upon the assessment of their communications.

In addition to Beisecker's work, a study by Fitzpatrick and Winke (1979) attempted to generate a set of negotiation strategies. In the latter study, subjects were asked to estimate how often they employed 44 different conflict-handling tactics. A factor analysis yielded five broad "strategies", specifically: Manipulation, Non-negotiation, Emotional Appeal, Personal Rejection and Empathetic Understanding. The first strategy is described by the authors as a "diversionary" tactic, i.e., an attempt to gain compliance without addressing or acknowledging a conflict. The range of verbalizations fitting this category is fairly broad. The authors, however, emphasize instances in which one party convinces (alters the preceptions of) the other that he (the latter) will gain more for himself from compliance than is actually the case. Non-negotiation is primarily the refusal to talk about or address the conflict, although repetition of the same position is listed in this category as well. Emotional appeals are exclusively relationship-oriented in this classification scheme, centering largely around the other's needs and the power to withhold or supply affection, attention, etc. Personal Rejection is an attempt to "demoralize" the other by disconfirming his actions, motives or personality. Finally, Empathetic understanding involves an element of "tentativeness" and the exploration of ways in which to reach mutually acceptable agreements. (pp. 6-7)

Taken collectively, Beisecker's work and the Fitzpatrick and Winke study indicate that a broad range of verbal strategies exist for negotiators. Furthermore, it is possible to conceptualize most of these strategies as competitive or cooperative in nature, depending on whether the goal is personal gain without regard for the other, or a mutually acceptable and efficient solution. Finally, the selection and utilization of verbal strategies should have some influence on the outcome which is eventually reached.

Although communication has been studied extensively as a structural variable in matrix games, no study has examined the content of communications relative to the solution which is reached. In light of the previous analysis, such a study seems warranted and timely. In general, studies of communication in matrix-type formats have tested the prediction that communication availability is necessary to develop trust and coordinate expectations, and thereby to identify and select the most efficient solution. The consideration of communication content extends the prediction as follows: Cooperative communication will be associated with the identification and selection of efficient alternatives, whereas competitive communication will be associated with less efficient alternatives. In any case, examination of communication content should contribute to a better understanding of how individuals attempt to obtain goals in mixed-motive negotiation.

In summary, both friendship and communication strategy may be variables which lead to systematic error in the formal gaming model. Social relationship may influence both the strategies selected and

the agreements reached. Particularly, friends should engage in more competitive strategies and presumably reach less efficient solutions than non-friends. Communication is essential to the accurate estimation of each participant's preferences and utilities, and hence to the identification of an efficient solution. Moreover, communication may be critical in the shaping of perceptions of participants concerning both factual and less tangible elements of negotiation.

Hypotheses

The hypotheses for this study were as follows:

1. The differential use of verbal communication strategies will vary across conditions of friendship, acquaintance and non-acquaintance.

2. The efficiency of solutions reached will vary across conditions of friendship, acquaintance and non-acquaintance.

3. The differential use of verbal communication strategies will be correlated with solution efficiency.

Hypothesis One predicts variation in the frequencies with which different types of verbal strategies are employed according to the type of social relationship. This prediction is derived from theoretical literature which suggests that friends may be different (from other relationships) in the approach to conflict situations because of greater interdependence, ego-involvement, and the sanction afforded by stability in the relationship.

Hypothesis Two predicts variation in the efficiency of solutions across relationship types. In other words, the relative efficiency of solutions reached in each group should be significantly different from the relative efficiency of solutions reached in at least one other group.

Hypothesis Three predicts correlations between strategy types and solution efficiency. In order to arrive at the most efficient solution with any consistency, the participants must have accurate information concerning their own and the other's preferences, alternatives, potential rewards and relative bargaining strength. Cooperative communication, among other things, has been characterized thus far as an attempt to provide just such an assessment. Competitive communication, on the other hand, attempts to distort such information to the advantage of the communicator. It therefore seems reasonable to predict that a high incidence of cooperative-type communications will be associated with the most efficient agreements, and that competitive strategies will be associated with less efficient solutions.

CHAPTER THREE

EXPERIMENTAL METHOD AND DESIGN

To test the predictions made in the previous chapter, thirty dyads were recruited from the SCHR Basic Program subject pool at the University of Kansas. Subjects were undergraduates who signed-up to fulfill a research participation requirement. Recruitment procedures had three variations: Ten dyads were recruited by requiring that the individuals in each dyad considered themselves "good friends." Another ten dyads were recruited with the stipulation that the members of each dyad were acquainted with each other. The remaining dyads were formed by first having two individuals sign up for each time block with no requirements concerning their relationship. It was assumed that a number of these would be acquainted. Subjects in this group were asked prior to the initiation of experimental procedures whether or not they had interacted previously. Those who had experienced previous interaction were considered a part of the acquaintance group for purposes of cell formation and procedural variations in the experiment. In all recruitment procedures, subjects were told the time, date and place of the experiment, and that they would be participating in a bargaining-type arrangement.

Procedure

Subjects for each dyad were asked to report initially to separate rooms for briefing. They were asked to read and (if acceptable) sign a consent statement which described in general terms the experimental procedures. Next, subjects in the acquaintance and friendship groups were asked to complete a questionaire-type form which was

later used to measure levels of voluntary interdependence and person-qua-person appreciation in the relationship. Approximately twenty minutes was allowed for this task. E then collected the forms and distributed printed instructions for the bargaining session (Appendix A). After five minutes, E solicited questions from S's concerning the mechanics of the game. It was emphasized that negotiation methods and goals for the participants would be unrestricted, except that a ten minute time limit would be imposed.

S's were then relocated in a conference-type room which was furnished with a table and two chairs. S's were seated initially on opposite sides of the table. E then provided S's with the necessary materials to conduct the bargaining session. After allowing S's one minute to study the materials, E announced "start", and left the room for the duration of the session. S's were allowed a maximum of ten minutes to reach agreement, and were asked to inform E if they reached an agreement prior to the deadline. The sessions were tape-recorded with the knowledge and consent of all subjects. After an agreement had been reached, S's were debriefed and dismissed.

The Bargaining Game

A variable-function, non-zero-sum game served as the stimulus to bargaining in the experimental sessions. The dual payoff matrix was as follows:

B \ A	1	2	3	4	5
1	210 / 150	80 / 420	270 / 230	350 / 10	390 / 110
2	50 / 450	450 / 50	110 / 390	150 / 210	170 / 260
3	150 / 280	450 / 170	110 / 350	420 / 80	200 / 230
4	370 / 60	60 / 300	320 / 180	180 / 180	280 / 150
5	180 / 320	230 / 200	230 / 270	300 / 60	60 / 370

In each dyad, an individual was given a table containing either the numbers above the diagonals or the numbers below each diagonal. The values were explained to be the number of points which would be won by an individual if an agreement was concluded at the A-by-B intersection at which that value was located. Each subject was told that the values or points which his opponent would receive would be unknown to him unless his opponent chose to tell him. Likewise, the individual was not required to divulge to his opponent the number of points he would receive, although he was free to do so if he desired. The tables were assigned randomly to participants.

Bargaining or bidding proceeded by the use of letter combinations, each of which was a possible agreement which could be concluded. For example, one of the participants could bid "A2B2," meaning the intersection of column A2 and B2. Assuming that his table contained the values along the top of the diagonals, an agreement at this point would give him 450 points. Of course, his opponent would receive only 50 points from such an agreement, and might refuse to agree to it, make a bid of his own, or discuss any matter which he thought relevant to the negotiations. Hence, the letter/number combinations were reference points for the identification of bids without necessarily identifying specific values (except to each player individually).

Notice that the most efficient solutions to this game are A3B1 and A3B5. This is the game theoretic solution which should be reached by purely rational players. Notice further that the only solution which provides exactly equal payoffs to the participants is only fourth in the overall efficiency ranking. Hence, there

was no immediate, prominent decision point which would also maximize efficiency.

Subjects were free to bargain in whatever manner they chose within the time constraints. They were only required to record their agreement, if one was reached. When an agreement was reached, the bargaining session was completed.

Measurement of Variables

In order to differentiate between levels of friendship, the Acquaintance Description Form (Wright, 1978) was used. The ADF is a series of 80 statements which require responses on a semantic-differential type scale. The ADF yields raw scores on three primary variables, all of which are used in arriving at a "Total friendship" score: Voluntary interdependence, Person-qua-person factors, and General Favorability. The total friendship score is computed by adding the corrected Voluntary Interdependence and Person-qua-Person scores together. (Reliability and validity data for this instrument are found in Wright, 1978).

For purposes of this study, it was necessary to arrive at a single friendship score for each dyad. The lower of the two scores was retained and assigned for the particular dyad as a conservative estimate of friendship strength. Friends were considered those individuals whose corrected ADF scores fell above the mean average for the sample. Those whose scores fell below the mean were considered to be acquainted, but not friends and were therefore labeled acquaintances. A t-test found the friendship and acquaintance scores to be significantly different ($t=4.58$; $d.f.=18$; $p<.01$). Non-acquaintances were simply assigned a value of "1" since it was assumed that they could not describe a non-existent relationship.

The analysis of communication strategies was accomplished by content analysis of the tape recordings for each dyad. The category scheme was generated from a variety of sources, including Beisecker (1970), Fitzpatrick and Winke (1979), and Crowell and Scheidel (1960). The four main headings--issues, interpersonal relationship, procedures and offers--were retained to serve as broad major categories in the classification scheme. Initially, a total of 43 subcategories were developed, most of which fell into the issue-oriented heading. To test for conceptual clarity and reliability, eight graduate students in Speech Communication were asked to read and score a transcript from an actual bargaining session. The category scheme was subsequently revised to decrease ambiguity and to differentiate between overlapping categories. In its final form, the classification scheme consisted of 33 subcategories. The reliability test using a different transcript and different raters exceeded .90 (employing procedures described by Winer, 1962, pp. 283-89). The classification scheme is given in Tables I-IV.

The fundamental unit for classification was considered to be a complete sentence, whether simple or complex. Where more than one idea was expressed in a single sentence, any part of the sentence which could stand alone as an independent idea was considered to be a unit for analysis. Furthermore, "run-on" sentences, i.e., statements which actually consisted of a number of sentences, were supplied with the appropriate punctuation and treated as separate sentences. Fragmented sentences were considered units for analysis only where some clear and substantive meaning could

TABLE 1--ISSUE-ORIENTED STRATEGIES

idea acceptance-- a statement of unqualified approval for the position, idea or opinion of another

idea rejection -- a statement of unqualified disapproval for the position, idea or opinion of another

pro-modification- the acceptance of the essentials of another's position or idea, but with minor modifications.

con-modification- the rejection of all or most of another's opinion or position and the introduction of some substitute opinion or position

position advanced- a statement of one's own evaluation of potential alternatives, utilities, evaluative criteria, or acceptability of offers

information adv.-- a statement containing factual information pertaining to one's utilities, preferences, alternatives, or previously stated positions or ideas

information denial- the stated refusal to supply information concerning one's utilities, preferences, alternatives or previously stated positions or ideas

asserted flexibility- the claim that one's position(s) is tentative and/or that one is willing to modify the position

asserted rigidity-- the claim that one's position(s) is firm and will not change

clarification --- the further development of an idea or position through example, elaboration or explanation

substantiation--- the stated offer of material proof for an assertion.

request for acceptance- inquiry concerning another's willingness to agree with an idea or position

request for position- inquiry concerning another's evaluation of any substantive matter

request for info.- inquiry soliciting factual information concerning the other's utilities, preferences, alternatives or previously stated ideas or positions.

request for substantiation- inquiry soliciting material support for an assertion.

TABLE II--RELATIONSHIP-ORIENTED STRATEGIES

asserted interdependence- the claim that both parties have incentive to reach agreement in the negotiation session.

asserted independence-- the claim that one has little or no incentive to reach agreement in the negotiation session.

deemphasis ----- the claim that the quality or character of the relationship should have no bearing on the process or outcome of negotiations.

personal rejection- negative evaluation of the character of the other

positive self-eval - positive evaluation of one's own character, either in isolation or in contrast to the other

request for exp of affect- solicitation of tangible expression of affect through deference and concession on the part of the other

inquiry--------- questions concerning the nature or dynamics of the interpersonal relationship between the participants

expansion------- statements which broaden the scope of discussion to include aspects of the relationship which are beyond the immediate bargaining context

TABLE III--PROCEDURE-ORIENTED STRATEGIES

initiation------- the introduction of new or alternative processes pertinent to negotiations

expressed concern- the claim that procedural difficulties exist and/or that such difficulties should be addressed.

acceptance------- statement of approval concerning proposed procedures or processes pertinent to the negotiations

rejection-------- statement of disapproval concerning procedures or processes which pertain to the negotiations

inquiry---------- questions concerning the processes or mechanics of negotiations.

TABLE IV--OFFER-RELATED STRATEGIES

initiation------- the submission, whether tentative or final, of an offer which has not previously been submitted, where submission means a proposed agreement

repetition------- the resubmission of any offer

tentative acceptance- qualified acceptance of an offer, modified by the use of such words as "maybe," "perhaps," or "possibly "

acceptance------- unqualified and final approval of an offer made by another

rejection-------- disapproval of an offer made by the other, i e , refusal to accept the proposal.

be gathered from context. For example, the fragment "perhaps so" stated subsequent to "Would you agree that A2B4 is our best choice?" would be considered a unit for analysis. But the fragment "Maybe... uh...we could..." was not considered a complete thought unit and was discarded so far as analysis was concerned.

It was necessary to delineate between competitive and cooperative strategies for purposes of evaluation. The following were considered competitive verbal strategies and not consistent with the goal of efficiency (but rather with furthering one's own gain without regard for the other):

Idea rejection	Con-modification
Information denial	Asserted rigidity
Asserted independence	Personal rejection
Positive self-evaluation	Request for expression of affect
Expansion	Procedure-rejection
Repetition (of offers)	Rejection (of offers)

Those strategies which were considered consistent with efficiency, and therefore cooperative, are as follows:

Idea acceptance	Pro-modification
Position advanced	Information advanced
Asserted flexibility	Clarification
Substantiation	Request for acceptance
Request for position	Request for information
Request for substantiation	Asserted interdependence
Deemphasis (of the relationship)	Inquiry (concerning the relationship)
Procedure initiation	Expressed concern (over procedural difficulties)

Expressed concern (over procedural difficulties)	Procedural acceptance
Inquiry (concerning procedures)	Initiation (of offers)
Tentative acceptance (of offers)	Acceptance (of offers)

Solution efficiency for the bargaining game was determined according to the definition presented in Chapter One. Each possible solution in the bargaining matrix was assigned a rank based upon its efficiency relative to all other solutions. In all cases except one, there were two solutions for each rank, i.e., two solutions were most efficient, two solutions were second most efficient, etc. This is so because in all except one case (where negotiators received exactly equal points), the reward distribution for each solution is exactly inverted in one other place in the matrix. The rankings for solution efficiency were:

1. (A3B1) and (A3B5)
2. (A5B3) and (A2B5)
3. (A3B4) and (A1B5)
4. (A4B4)
5. (A2B3) and (A5B2)
6. (A1B3) and (A5B4)
7. (A1B1) and (A4B2)
8. (A3B2) and (A5B1)
9. (A2B1) and (A4B3)
10. (A1B4) and (A5B5)
11. (A2B4) and (A4B5)
12. (A1B2) and (A2B2)
13. (A4B1) and (A3B3)

Data Analysis

Hypothesis One was tested using one-way analysis of variance for each strategy type. Three cells were formed for each analysis based upon corrected ADF scores, hence friendship served as the independent variable. The dependent variable was frequency of strategy utilization for each dyad.

Hypothesis Two was tested by subjecting the rank ordered solution efficiency for each dyad to a Kruskall-Wallis H test. Again, friendship served as the independent variable, and solution efficiency as the dependent measure.

Finally, Hypothesis Three was tested using a series of Spearman-type rank correlation analyses. The data for solution efficiency was rank-ordered as in Hypothesis Two, and served as one variable. In addition, the frequency data for employment of verbal communication strategies was rank ordered for each dyad with respect to the number of times a strategy was employed. For each rank correlation analysis, there were thirty values for solution efficiency, and thirty corresponding values for frequency of a strategy. Tied ranks were corrected using procedures described by Spiegel (1961, p. 260).

CHAPTER FOUR

RESULTS AND DATA ANALYSIS

The quantitative analysis for Hypothesis One consisted of twenty-four one-way analyses of variance, corresponding to the twenty-four verbal communication strategies which were actually employed by subjects. Overall, the results do not support the prediction that friends, acquaintances and non-acquaintances differentially employ verbal communication strategies. For issue-related strategies, only idea acceptance and pro-modification approached statistical significance ($p. < .05$). Personal rejection was the only relationship-oriented strategy which approached significance. None of the procedure or offer-related strategies were significant. Taken collectively, the data do not support Hypothesis One.

Although significance was obtained for idea acceptance and pro-modification, the data is somewhat difficult to interpret. The theoretical development presented earlier suggested that friends would employ idea acceptance the least, followed by acquaintances and then non-acquaintances (who should have employed it the most). In fact, non-acquaintances employed idea acceptance the most, but friends employed it next most, followed by acquaintances. Hence, a linear progression based upon level of acquaintance was not obtained for this strategy. Furthermore, pro-modification was employed most by friends, which was not predicted by theory. Since the data for these strategies was only marginally significant, and since the majority of strategies were non-significant, the results may be considered somewhat tenuous.

Of the remaining three categories, only personal rejection in the relationship-oriented class approached significance. The data indicated that friends employed the strategy most (in fact, only friends used the strategy at all). Significance was only obtained at the .10 level, however, and hence remains suspect.

The Kruskall-Wallis test for relationship type by efficiency of solution yielded significant results ($p. < .05$). Hence, support was obtained for Hypothesis Two. The results are shown in Table V. The results, however, were pattered in a manner not entirely consistent with the earlier theoretical development. Friends, who were supposed to select the least efficient solutions, actually selected the most efficient, followed by acquaintances and then non-acquaintances. This finding seems especially noteworthy and will be explored further in the next chapter.

The results for the rank correlation analysis (summarized in Table VI) do not support Hypothesis Three. Specifically, solution efficiency did not correlate well with the majority of verbal communication strategies. For the most part, there is no reason to believe that solution efficiency is linearly related with verbal communication strategies, although a number of specific correlations are of considerable interest.

Of those strategies which showed correlational significance, three were significant at the .01 level; namely, Asserted independence, Positive self-evaluation, and (relationship) Inquiry. All three of these were associated with less efficient solutions. (In all cases of positive correlation, the particular strategy is associated with less efficient solutions. Conversely, a negative correlation associates the use of a strategy with more efficient

TABLE V

SUMMARY OF KRUSKAL-WALLIS H TEST

FOR EFFICIENCY BY RELATIONSHIP TYPE[1]

Non-acquainted	Acquainted	Friends
7.0	22.5	14.5
7.0	18.0	22.5
7.0	29.0	18.0
13.0	7.0	7.0
22.5	26.5	7.0
22.5	7.0	18.0
25.0	7.0	18.0
26.5	7.0	7.0
29.0	14.5	7.0
29.0	7.0	7.0

SS_t = 2047.50

SS_b = 241.35

MS_t = 70.60

F = 3.42 *

*$p < .05$ a.f.=(2,29)

[1] Computations for this test are identical to those for a one-way analysis of variance, except that the F-ratio is obtained by use of the statistic

$$\frac{SS_t}{MS_t}$$

because the data consists of ranks rather than intervally scaled values.

TABLE VI

SUMMARY OF RANK CORRELATION ANALYSIS

FOR STRATEGY TYPE AND SOLUTION EFFICIENCY

Strategy Type	r	t
Idea Acceptance	.209	1.13
Idea Rejection	.163	0.87
Pro-modification	.251	1.37
Con-modification	.301	1.67
Position Advanced	.140	0.74
Information advanced	.098	0.52
Asserted Flexibility	.353	1.99*
Asserted Rigidity	.353	1.99*
Request for Position	-.325	-1.82*
Request for Info.	.217	1.17
Asserted Interdep.	.304	1.69
Asserted Independence	.520	3.23**
Personal rejection	.304	1.69
Positive Self-eval.	.490	2.97**
Inquiry	.460	2.72**
Procedure initiation	-.132	-0.70
Expressed concern	-.157	-0.84
Procedure acceptance	.108	0.57
Procedure rejection	.234	1.27
Inquiry	-.195	-1.05
Offer initiation	-.368	-2.09*
Repetition	-.340	-1.91*
Tentative Acceptance	.133	0.71
Rejection	-.380	-2.17*

d.f.= 28 * $p. < .05$ ** $p. < .01$

solutions). In addition, a total of six strategies yielded correlations which were significant at the .05 level of confidence: Asserted Flexibility, Asserted Rigidity, Request for Position, Offer Initiation, Offer Repetition and Offer Rejection. A number of these correlations are particularly interesting and will be discussed in the next chapter. But overall, the bulk of the data does not support the hypothesis since only nine out of twenty-four correlations were significant.

To summarize, the data analysis yielded support for Hypothesis Two, but did not provide support for Hypothesis One and Three. Chapter Five offers a more detailed interpretation of the results, and conclusions for the investigation.

CHAPTER FIVE

DISCUSSION AND CONCLUSIONS

It was hypothesized that friends would select and use different verbal strategies than would acquaintances and non-acquaintances. It was further hypothesized that friends would agree on less efficient solutions than the other two groups. Finally, it was hypothesized that solution efficiency would be correlated with the selection of verbal strategies.

The quantitative analysis for Hypothesis One indicated that there were no overall differences between groups with respect to the frequency of usage for each strategy. On the other hand, Hypothesis Two was supported, but in a direction opposite from that predicted. The most efficient solutions were chosen by friends, while somewhat less efficient solutions were chosen by acquaintances and non-acquaintances. Hypothesis Three was not supported since no clear and consistent pattern of correlation was found between the strategies employed and the solutions reached.

Theoretical Implications

According to the theoretical structure developed earlier in this study, friends should have exhibited quantitatively more competitive verbal communication strategies than the other groups. The logic was that structural aspects of the relation would permit greater freedom to play competitively, and that greater ego-involvement would constrict the number of "acceptable" positions and solutions for each participant in this group. The data did not support this prediction and a number of explanations seem plausible.

First, it may be that friendship has little or no effect on the strategic outlook or goal orientation of negotiators. The data certainly do not support such a relationship in so far as verbal content is concerned. Although contradictory to the logic developed earlier, this must certainly be considered a possibility.

Second, it is possible that aspects of the experimental context served to moderate the behavior of individuals who might have acted more competitively in a different setting. For example, the verbal content of an argument between roomates might be much more competitive in the privacy of their apartment dwelling than in front of a microphone in a laboratory. The point is that the theoretical proposition may hold more truth than was indicated by the results of the experiment.

Third, it is possible that the freedom to play competitively (integral to the prediction that friends would display competitive verbal strategies) exists only for very good friends. It is possible that the study did not obtain subjects at the level of friendship necessary for this behavior to be observed. This seems unlikely, however, since the friendship scores were fairly high, and they were significantly different from acquaintance scores.

Finally, it is possible that verbal content simply is not the best measure of goal orientation or strategic outlook. In any case, relationship type does not appear to be a good predictor of verbal communication content in experimental negotiations.

The same theoretical justification was offered for Hypothesis Two as for Hypothesis One. It was predicted that friends would select the least efficient solutions, followed by acquaintances

and non-acquaintances. In fact, the opposite occurred, which seems to cloud the efficiency postulate somewhat. An interesting (although speculative) conclusion might be that those in the friendship group better met the assumptions made by game theory. For example, it was assumed that voluntary interdependence varied across relationship types, but that situational (structural) interdependence was constant. Acquaintances and non-acquaintances who were less interdependent outside the experiment context (and could be expected to be less ego-involved) might also take the negotiations less seriously. A less serious view, coupled with the individualistic orientation provided in the instructions could have led to the less efficient solutions observed in the non-friend groups. Friends, on the other hand, may have chosen to function independently of prescribed orientations. In any case, friends behaved more "rationally" than the other groups if the solutions can be taken as an indication.

Second, the results may simply be a function of the common sense notion that friends should display more cooperation than other types of dyad. The degree of <u>positive affect</u> toward each other could function to make friends behave in a more cooperative manner than non-friends, although this is not consistent with the theoretical development presented earlier. Nevertheless, mutual positive regard could account in part for the results.

A third possible explanation relates to the greater relationship security which should exist for friends. Although relationship security was suggested earlier as a reason why friends might

compete more than others, security of this sort could also work in another way. Friends, enjoying a secure interpersonal relationship, might feel no need to position or posture themselves in the bargaining situation. Persons less well acquainted, on the other hand, might perceive the need for positioning simply because of uncertain or less defined levels of security in their relationship. In any case, if greater relationship security exists for friends, it did not lead to deviation from the gaming model and the theoretical solution.

Finally, at least one additional explanation seems plausible. Schelling (1960) and others have emphasized that coordination of expectations is essential to cooperative behavior. Friends, who presumably know more about each other than non-friends, might be more adept at the sort of coordination necessary to quickly identify and choose the most efficient solution. That they did choose the most efficient solutions, partially supports this explanation. Since this finding occurred at the .05 level of significance, it does show promise of replication.

Hypothesis Three predicted a significant correlation between the strategies employed and the solutions reached. The logic was that cooperative communication was necessary both to identify and select the most efficient solution. The data did not indicate a clear pattern in any direction, although one should not conclude that communication did not serve strategic ends at all.

The category scheme and structure of the game may provide additional tools for interpreting the results. The category

scheme may not have mirrored the intentions of the subjects, and therefore, led to somewhat inaccurate results. Furthermore, the structure of the game may have lessened the perceived importance of communication to affect the outcome. Consequently, subjects may have failed to conceptualize and consistently use communication as a tool of strategy.

Finally, a more complex analysis of the communication content might be necessary to detect a relationship between efficiency and communication. It is possible that several strategies produce an additive effect, or that specific strategies interact. Such an analysis would be quite complex and beyond the scope of this study, but it might be considered as a next step in the area of this topic.

In terms of game theory, the results of this study are inconclusive, yet a number of conservative implications can be drawn. First, friendship does not appear to be a source of systematic error in the gaming model. Rather, friends behaved largely in accordance with the efficiency postulate. It was lesser degrees of acquaintance which was associated with less efficient solutions.

Second, this study did not find any appreciable correlation between the differential use of verbal communication strategies and solution efficiency. Hence, communication content cannot be considered a source of systematic error in game theory at this time.

Validity of Results

Internal

For the most part, the internal validity for this study seems satisfactory. The ADF instrument has been tested a number of times (Wright, 1978) and can be assessed as both a reliable and valid indicator of voluntary interdependence and person-qua-person affect. The measurement of efficiency can be considered valid according to definition (since the efficiency concept is mathematical the ranked solutions can be considered a valid measure of efficiency). Internal validity for the measurement of verbal strategies, however, was not so clear-cut and requires further comment.

Overall, the content analysis procedures for this study can be considered one valid means of measuring verbal communication strategies. On the other hand, the scheme may not be the best and a number of reservations seem warranted. First, although the categories were shown to be conceptually distinct, there is no evidence that the subjects conceptualized the same distinctions. For example, a subject who employed pro-modification may or may not have conceptualized himself as actually accepting the essentials of the other's idea and offering a minor modification.

In a similar vein, the conceptual distinction between strategies offered by this category scheme is not necessarily a measure of functionally distinct strategies. In other words, a subject might have employed two or even three strategies without conceptualizing any difference in their usage or purpose. If

Idea acceptance and pro-modification were conceptualized and used by subjects with the same idea in mind, the statistical analysis would not detect it.

Finally, the internal validity may be limited somewhat in the area of intent. Most of the strategy types were divided into one of two classes corresponding to either a competitive or cooperative goal orientation. It is important to note that this dichotomy is based upon the inferred intent of the participants. It might be difficult to prove that a subject who tentatively accepted an offer actually had "cooperation" as the motive for doing so. In the general sense, inferred intent is not a perfect measure of actual intent.

In defense of the category scheme, it should be reiterated that a reliability coefficient (for raters) of greater than .90 was achieved, implying that the strategies were conceptually distinct. This suggests that subjects were at least able to conceptualize differences between strategy types. Hence, although the observed verbalizations may not have mirrored the minds of subjects, they may be taken as an approximation of intent. And, of course, the general direction of the study was to examine the results of usage of verbal strategies and not necessarily the results of intent of the subjects (although a relationship between the two was assumed). In sum, the category scheme can be considered reasonably valid in terms of what it was designed to measure.

External

The external validity of the results is limited by a number of factors. First, all subjects in the experiment were college

students. It is not altogether clear just how college students might differ from other persons in bargaining behavior. The Oskamp and Perlman (1966) results demonstrated that even students from different colleges behaved significantly different in a matrix game. Hence, the subjects must be considered a limitation to the external validity in this study.

The stimulus for bargaining should also be considered a limitation for the results, particularly for the hypothesis involving verbal communication. As Beisecker notes, the potential influence of verbal communication on bargaining procedures or agreements depends largely upon the degree of structure initially perceived by the participants. (p.153) It is not entirely clear how much structure was actually perceived by the participants in this study. It was emphasized repeatedly that they were free to bargain in whatever manner they chose. There was clearly some structure, however, including the time limit and the bargaining matrix. At best, the results for the study must be limited to situations that are clearly perceived by participants to be commercial-bargaining, or gaming situations.

Finally, the laboratory setting itself served as something of a limitation. The process of formally signing up for and attending a session which was known in advance to be an "experiment" could have influenced subjects and could be considered a contextual limitation to the results. The controlled environment of the experiment could further limit generalization of these results. The laboratory context, of course, was chosen for purposes of standardization and control.

Suggestions for Future Research

Both social relationship and communication strategy seem very fruitful topics of research with respect to interpersonal negotiation. A number of directions for research should prove beneficial in the development of theory as well as practice.

First, the concept of friendship in negotiation merits further attention. The next step would seem to be some type of exploratory field work which would attempt to determine whether or not friends tend to use strategies which are measurably different from those used in other types of relationship. The practical difficulties with field work in this area might be formidable and one alternative could be a sort of self-report instrument. Either of these approaches would sacrifice a degree of standardization and control found in laboratory work, but they might serve beneficially as a directional tool for experimental research. And, of course, the "real-life" setting of non-experimental work might be more appropriate considering the personal nature of the subject.

Second, it would be desirable to attempt a replication of procedures stemming from Hypothesis Two. Replication with similar results would serve to enhance the credibility of the results obtained in this study, and might suggest practical elements for successful negotiations.

Third, it would seem profitable to explore aspects of the friendship relation beyond voluntary interdependence and mutual intrinsic satisfaction. Although these two structural components are important, it should be possible to integrate other characteristics to form an even more precise definition of friendship.

Fourth, it would be desirable to further explore methods of measuring verbal communication content. Perhaps a pool of specific verbal comments could be generated which could be factor-analyzed and applied in a manner similar to that of this study. Verbilizations which are found to be correlated could be collapsed and might serve as a more sensitive measure than conceptual clarity.

Fifth, it should be useful to develop a method for testing the relationship between the degree of preliminary structure and the character of verbal communication content. It is not clear from this study exactly how much structure could have affected the approaches and aims of the participants. A more clearly defined and empirically verified relationship should serve to clarify the results obtained in future studies such as the present one.

Finally, it would be desirable to develop a means for monitoring the intent or goals of negotiators throughout the experiment. Clearly, there are some practical problems, but the information obtained would be very useful in comparing goals with results, goal consistency, and, of course, the consistency of goals with particular verbal strategies which are employed.

Summary

The purpose of this investigation was to evaluate differential social relationships and verbal communication strategies as potential sources of systematic error in game theory. Specifically, the study focused upon friendship as an antecedent influence and

communication as a process variable affecting the agreements reached in mixed-motive interpersonal negotiations.

The theory of negotiated games was examined and considered as a tool for the evaluation of contextual conflict interaction. The most primary assumptions of game theory were reviewed. It was suggested that although game theory is a useful model, actual human interaction is more complex that the theory implies. It was predicted that friendship would serve as a competitive influence in negotiations leading to solutions which would differ from those predicted by game theory. It was further predicted that friends would display a larger number of competitive verbal communication strategies that non-friends. Finally, it was predicted that competitive verbal strategies would be associated with less efficient solutions, and that cooperative strategies would be associated with the more efficient solutions.

To test these predictions, thirty dyads were recruited to participate in a bargaining session which was structured to be mixed-motive in nature. The subject's verbalizations and solutions were recorded and subjected to analysis.

The results indicated that friends selected the most efficient agreements, but they did not employ more competitive or cooperative verbal strategies. Finally, no significant relationship was found between verbal communication strategies and solution efficiency.

This chapter explored the theoretical implications of the results. It was suggested that friends may better meet the assumptions of game theory, as is evidenced by their selection of the most efficient solutions. A number of reasons were suggested for the lack of statistical significance for Hypotheses One and Three. Finally, suggestions were made for future research in these areas.

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APPENDIX A

Payoff Matrices

PLEASE DO NOT MARK ON THIS SCHEDULE. USE THE SCRAP PAPER PROVIDED IF YOU NEED TO WRITE ANYTHING.

Schedule of Points

B \ A	1	2	3	4	5
1	150	420	230	10	110
2	450	50	390	210	260
3	280	170	350	80	230
4	60	300	180	180	150
5	320	200	270	60	370

PLEASE DO NOT MARK ON THIS SCHEDULE. USE THE SCRAP PAPER PROVIDED IF YOU NEED TO WRITE ANYTHING.

Schedule of Points

B \ A	1	2	3	4	5
1	210	80	270	350	390
2	50	450	110	150	170
3	150	260	10	420	200
4	370	60	320	180	280
5	180	230	230	300	60

APPENDIX B

Instructions for Bargaining

Sample Schedule of Profit to You

B \ A	1	2	3	4	5
1	10	30	60	160	210
2	15	45	90	240	315
3	20	60	120	320	420
4	8	24	48	128	168
5	5	15	30	80	105

INSTRUCTIONS

The session you are about to participate in is a bargaining game in which you and your opponent will be negotiating for imaginary money. The object of the game is to win as much money for yourself as possible. Each point in the game represents one dollar of imaginary money. Although there will be no real exchange of money, I would like you to bargain as though you were playing for actual dollars.

On the page preceding this one, there is a sample of the type game you'll be playing. So that you'll thouroughly understand how the game works, let's take a look at the sample and I'll explain. As you can see, the sample is a table of numbers and the letters "A" and "B". The numbers represent points which you will receive if an agreement is reached at a specific intersection between A and B. Notice that there are five columns listed by number across the top of the table. We will call these columns A1, A2, A3, A4 and A5. Also we can see that there are five rows numbered from top to bottom of the table. These we shall call B1, B2, B3, B4 and B5. It is possible to identify any space in the table by using these letters and numbers. For example, the upper left-hand box or space could be called "A1B1". Likewise, the box containing the value 168 could be called "A5B4".

You may wonder why we're using these letters and numbers since your values are already specified in the boxes of the table. The reason for this is that your opponent will also have a table, but his table will not be exactly the same as yours. For example, the

sample table shows that an agreement at "A4B2" would give you 240 points, but your table does not tell you what your opponent would receive from such an agreement. Indeed, your opponent's table of profits will be known only to him unless he chooses to tell you what they are. Likewise, your profits will be known only to you unless you choose to tell your opponent.

Since you won't know each other's profit levels (number of points) it will be necessary to identify your bids using the letters and numbers which specify a given box in your tables. For example, you may look over your table and decide you would like to obtain 320 points.

Notice that 320 lies at the intersection of column A4 and row B3. You might then inform your opponent that you would like to "bid" or reach agreement at "A4B3". Your opponent may then consult his own table to see how many points he would receive if he agreed on A4B3. If he finds his own profit acceptable, he may agree to your proposal. In this case, the bargaining is over and you should inform me that you have reached agreement. If your opponent does not find his level of profit to be satisfactory, he may reject your bid, make a bid of his own, or talk about anything else which he considers relevant to the bargaining session. You will have essentially the same options. You may reject your opponents bids, make bids of your own, or talk about anything else you consider relevent to the bargaining session. Either of you may <u>re</u>submit a previous bid at any time.

Throughout the session, you may reveal as much or as little about your options and points as you wish. You may even misrepresent them if you like. There are no restrictions on your bargaining

procedures, except that any agreement must be labeled "A__B__". The latter requirement is for clarity. Keep in mind that you need not agree to any bid that you do not want to. To minimize any confusion on this point, I will provide you with a slip of paper to fill out when you reach an agreement. You will be asked to fill in the letter/number combination which is agreed upon, and to sign your names to it. Until the paper is signed, you may bargain in whatever manner you choose. Once the paper is signed, the bargaining is over.

In a few minutes, we'll go into another room where you will sit across a table from your opponent. At that time, I will give you the actual game matrix listing your options and respective profits to you. I'll give you about a minute to look over the matrix before actual bargaining begins. I will then say "start." Either of you may begin the bargaining in the manner you see fit. You will have precisely 10 minutes to negotiate. If no agreement has been reached after the 10 minute deadline, then you have earned no points.

It is to your advantage, then, to reach an agreement. You need not arrive at a decision too hastily, however, since 10 minutes is plenty of time for negotiation. To help you keep track of time, I'll signal you after 5 minutes, and again after 9 minutes have elapsed.

When you reach an agreement, please remember to record it on the slip of paper provided and sign it. If you finish before the 10 minutes is over, please inform me.